1. Record Nr. UNINA9910765758803321

Autore	Kumar Lalit
Titolo	Google Earth Engine Applications / / Lalit Kumar, Onisimo Mutanga
Pubbl/distr/stampa	Basel, Switzerland : , : MDPI, , 2019
ISBN	9783038978855 303897885X
Descrizione fisica	1 online resource (420 pages)
Disciplina	910.285
Soggetti	Google Earth
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	About the Special Issue Editors . ix -- Onisimo Mutanga and Lalit Kumar Google Earth Engine Applications Reprinted from: Remote Sens. 2019, 11, 591, doi:10.3390/rs11050591 . 1 -- Lalit Kumar and Onisimo Mutanga Google Earth Engine Applications Since Inception: Usage, Trends, and Potential Reprinted from: Remote Sens. 2018, 10, 1509, doi:10.3390/rs10101509 . 5 -- Manuel Campos-Taberner, Alvaro ´ Moreno-Mart´nez, Francisco Javier Garc´a-Haro, Gustau Camps-Valls, Nathaniel P. Robinson, Jens Kattge, and Steven W. Running Global Estimation of Biophysical Variables from Google Earth Engine Platform Reprinted from: Remote Sens. 2018, 10, 1167, doi: 10.3390/rs10081167 . 20 -- Ate Poortinga, Nicholas Clinton, David Saah1, Peter Cutter, Farrukh Chishtie, Kel N.Markert, Eric R. Anderson, Austin Troy, Mark Fenn, Lan Huong Tran, Brian Bean,Quyen Nguyen, Biplov Bhandari, Gary Johnson and Peeranan Towashiraporn An Operational Before-After-Control-Impact (BACI) Designed Platform for Vegetation Monitoring at Planetary Scale Reprinted from: Remote Sens. 2018, 10, 760, doi:10.3390/rs10050760 . 37 -- Yu Hsin Tsai, Douglas Stow, Hsiang Ling Chen, Rebecca Lewison, Li An and Lei Shi Mapping Vegetation and Land Use Types in Fanjingshan National Nature Reserve Using Google Earth Engine Reprinted from: Remote Sens. 2018, 10, 927, doi:10.3390/rs10060927 . 50 -- Nathaniel P. Robinson, Brady W. Allred, Matthew O. Jones, Alvaro Moreno, John S. Kimball, David E. Naugle, Tyler A. Erickson and Andrew D. Richardson A Dynamic Landsat Derived Normalized Difference Vegetation Index (NDVI) Product for the

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Sommario/riassunto

In a rapidly changing world, there is an ever-increasing need to monitor the Earth's resources and manage it sustainably for future generations. Earth observation from satellites is critical to provide information required for informed and timely decision making in this regard. Satellite-based earth observation has advanced rapidly over the last 50 years, and there is a plethora of satellite sensors imaging the Earth at finer spatial and spectral resolutions as well as high temporal resolutions. The amount of data available for any single location on the Earth is now at the petabyte-scale. An ever-increasing capacity and computing power is needed to handle such large datasets. The Google Earth Engine (GEE) is a cloud-based computing platform that was established by Google to support such data processing. This facility allows for the storage, processing and analysis of spatial data using centralized high-power computing resources, allowing scientists, researchers, hobbyists and anyone else interested in such fields to mine this data and understand the changes occurring on the Earth's surface. This book presents research that applies the Google Earth Engine in mining, storing, retrieving and processing spatial data for a variety of applications that include vegetation monitoring, cropland mapping, ecosystem assessment, and gross primary productivity, among others. Datasets used range from coarse spatial resolution data, such as MODIS, to medium resolution datasets (Worldview -2), and the studies cover the entire globe at varying spatial and temporal scales.